



MORBIDITY AND MORTALITY WEEKLY REPORT

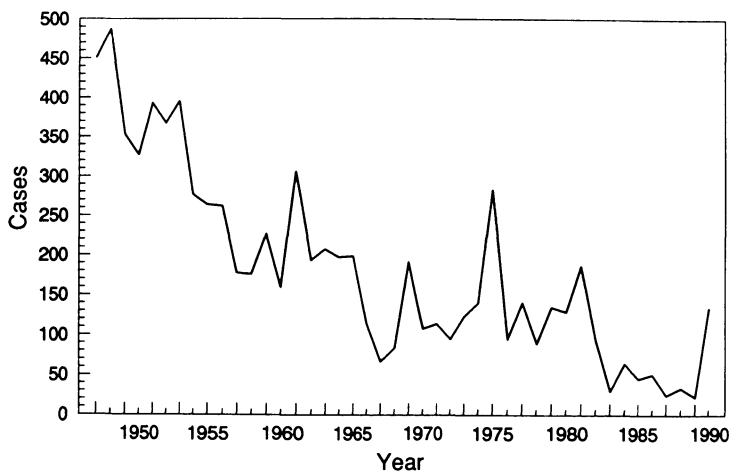
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Epidemiologic Notes and Reports***Trichinella spiralis* Infection – United States, 1990**

Since 1947, when the Public Health Service began to record statistics on trichinosis, the number of cases reported by state health departments each year has declined: in the late 1940s, health departments reported an average of 400 cases and 10–15 deaths each year; from 1982 through 1986, the number declined to an average of 57 per year (Figure 1) and a total of three deaths (1,2). Although this trend reflects a decline in the number of cases related to commercially purchased pork, recent outbreaks of trichinosis in Iowa and Virginia emphasize the continuing need for education about the dangers of eating inadequately cooked pork.

Des Moines, Iowa. From July 21 through September 3, 1990, 90 (36%) of 250 persons who attended or ate food taken from a wedding in Des Moines on July 14

FIGURE 1. Reported trichinosis cases – United States, 1947–1990*



*Data for 1987–1990 are preliminary.

Trichinella spiralis — Continued

developed trichinosis*; most (approximately 95%) of the 250 persons had immigrated to the United States since 1975 from Southeast Asian countries. Of those who became ill, 52 (58%) were treated by physicians; one of the 52 was hospitalized.

Detailed case histories were obtained from 39 ill and 13 well persons who attended the wedding. Of the 39 ill persons, 34 (87%) ate uncooked pork sausage, compared with four (31%) of the 13 well persons ($p < 0.01$, Mantel-Haenszel test); no other foods were associated with illness. The sausage had been prepared from 120 lbs of commercially purchased pork and was served uncooked, as is customary for that food item in Southeast Asian culture. No pork was available for analysis at the time of investigation.

The meat could not be traced back to the source farm because the meat-packing company that supplied the pork slaughters 14,000–15,000 hogs a day from hundreds of farms, and the exact date the hogs were slaughtered was unknown.

Only four (4%) of 107 persons who attended the wedding and were interviewed knew about trichinosis or about the potential hazards of eating undercooked pork. The Iowa Refugee Health Program, Iowa Department of Health, prepared a brief information sheet describing trichinosis and ways to avoid infection and translated this information into the three major languages (Laotian, Cambodian, and Vietnamese) of the Southeast Asian community in Iowa; the information sheet is being distributed by the Bureau of Refugee Programs.

Staunton, Virginia. In November and December 1990, 15 cases of trichinosis* were reported by eight local physicians in Augusta, Page, Rockingham, and Shenandoah counties to the Central Shenandoah Health District, Virginia Department of Health. Six cases were confirmed by muscle biopsy, five had positive serology by bentonite flocculation, and four were epidemiologically linked. Nine of these persons required hospitalization. All patients had fever, myalgia, and periorbital edema; all nine patients for whom eosinophil counts were available had elevated levels.

Detailed case histories were available for all ill persons. Fourteen (93%) persons reported eating pork sausage 4–21 days before onset of symptoms; 10 (67%) ate the sausage uncooked. One person who denied eating undercooked sausage was employed as a meat handler in the plant that processed the implicated sausage.

The investigation was limited to those who were ill; no controls were interviewed. The 14 persons who had consumed sausage had purchased bulk pork sausage from several local retail grocery stores; the stores had purchased this sausage from a local processing plant. No pork was available for analysis at the time of investigation. During the 6 weeks before the outbreak, the plant purchased hogs from two brokers who had obtained hogs from multiple producers in Virginia and surrounding states. The plant produces 1500 lbs of sausage per week, which is distributed throughout eight counties in the Shenandoah Valley.

The health department issued an areawide alert to physicians and hospitals and a news release to all area newspapers that included information on proper cooking and handling of raw pork.

*The CDC case definition for trichinosis is 1) a *Trichinella*-positive muscle biopsy or positive serologic test for trichinosis in a patient with eosinophilia, fever, myalgia, and/or periorbital edema; or 2) in an outbreak, at least one person must meet the first criterion; associated cases are defined by either a positive serologic test for trichinosis or eosinophilia, fever, myalgia, and/or periorbital edema in persons who have shared the epidemiologically implicated meal or consumed the implicated meat product.

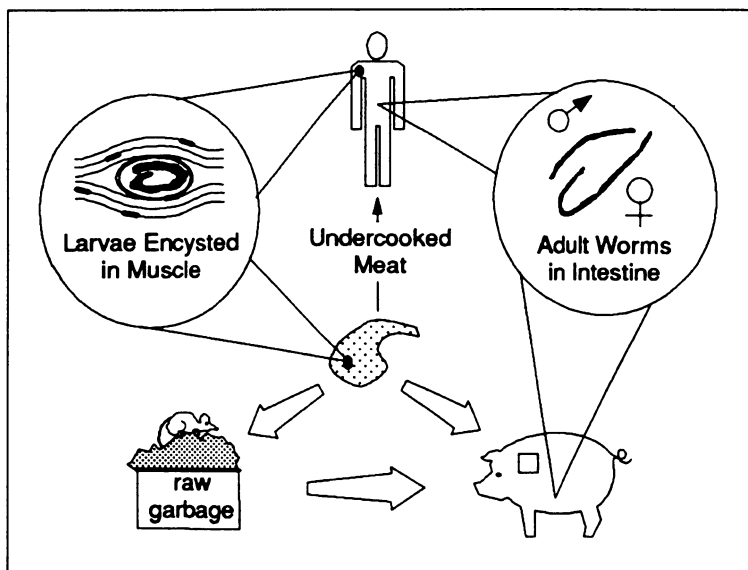
Trichinella spiralis — Continued

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Editorial Note: Since 1975, the proportion of trichinosis cases associated with consumption of contaminated commercial pork has declined in the United States. This decline probably reflects a combination of factors, including laws prohibiting the feeding of offal to hogs, the increased use of home freezers, and the practice of thoroughly cooking pork. In recent years the relative importance of consumption of wild game (including bear, wild boar, and walrus) (2,3) as a cause of trichinosis has increased. Consumption of meat from any carnivorous animal that has fed on trichina-infested flesh poses a risk (Figure 2). In addition to the two multiple-case outbreaks in this report, 15 other cases were reported in 1990. At least three cases were sporadic; information on the remaining 12 is unavailable.

The outbreak in Iowa is the fourth since 1975 that occurred among the 900,000 Southeast Asian refugees who have immigrated to the United States (4,5). The three previous outbreaks were related to consumption of undercooked pork that was not obtained from a commercial producer (4). This outbreak is consistent with previous reports indicating that recent immigrants from Southeast Asia are at particular risk for developing trichinosis because of their dietary habits (4).

FIGURE 2. Life cycle of *Trichinella spiralis* in humans



Flesh with infective larvae is eaten by humans or other animals. The larvae become adult worms in the intestine of the host and in turn release new larvae, which penetrate the intestinal wall and encyst in striated muscle. Cannibalism, scavenging for meat scraps, and consumption of farm rats may be important sources of infected flesh. Feeding raw garbage to pigs is illegal in the United States. Wild game, especially bear and boar, are often sources of infection in humans.

Trichinella spiralis — Continued

Based on serologic examination of hogs at abattoirs, the prevalence of *Trichinella* infection in commercial pork ranges from 0 to 0.7% (6,7). Approximately 80 million hogs are slaughtered commercially each year in the United States. About 40% of the pork produced is sold as "ready to eat" pork products; such products must be made with trichina-free pork or pork adequately cooked or treated to kill trichina larvae. *Trichinella* larvae in pork are killed by freezing at 5 F (–15 C) for 21 days (or longer if meat is >15 cm thick); however, *Trichinella* larvae present in wild game are often relatively resistant to freezing (8). Cooking is one of the most common methods of assuring that *Trichinella* are destroyed; a temperature of 170 F (77 C) substantially exceeds the thermal death point and is usually achieved if the meat is cooked until it is no longer pink (9).

Public health officials in areas with large populations of immigrants from South-east Asia should consider education programs directed at the prevention of trichinosis. Physicians need to be aware of the continued presence of *T. spiralis* in commercial pork in the United States and should consider the diagnosis in any patient with an illness compatible with trichinosis and whose dietary preferences put them at risk for infection.

References

1. Schantz PM. Trichinosis in the United States, 1947–1981. *Food Technol* 1983;37:83–6.
2. Bailey TM, Schantz PM. Trends in the incidence and transmission patterns of human trichinosis in the United States, 1982–1986. *Rev Infect Dis* 1990;12:5–11.
3. CDC. Trichinosis surveillance, United States, 1986. *MMWR* 1988;37(no. SS-5):1–8.
4. Stehr-Green JK, Schantz PM. Trichinosis in Southeast Asian refugees in the United States. *Am J Public Health* 1986;76:1238–9.
5. US Department of Health and Human Services. Report to the Congress: Refugee Resettlement Program. Washington, DC: US Department of Health and Human Services, January 31, 1990.
6. Duffy CH, Schad GA, Leiby DA, et al. Slaughterhouse survey for swine trichinosis in Northeast United States. In: Kim CW, ed. *Trichinellosis, proceedings of the Sixth International Conference on Trichinosis*. Albany, New York: State University of New York Press, 1985.
7. Hill RO, Spencer PL, Doby KD, et al. Illinois swine trichinosis epidemiology project. In: Kim CW, ed. *Trichinellosis, proceedings of the Sixth International Conference on Trichinosis*. Albany, New York: State University of New York Press, 1985.
8. Dick TA, Chadee K. Biological characterization of some North American isolates of *Trichinella spiralis*. In: Kim CW, Ruitenberg EJ, Teppema TS, eds. *Trichinellosis, proceedings of the Fifth International Conference on Trichinosis*. Surrey, England: Reedbooks, 1981.
9. Leighty JC. Control I public-health aspects (with special reference to the United States). In: Campbell WC, ed. *Trichinella and trichinosis*. New York: Plenum Press, 1983.

Current Trends

Update: Years of Potential Life Lost Before Age 65 — United States, 1988 and 1989

Final mortality data from CDC's National Center for Health Statistics (NCHS) indicate that in 1988 deaths in the United States accounted for 12,276,554 years of potential life lost before age 65 (YPLL) (Table 1)—a total consistent with provisional data reported previously (12,281,741 YPLL [1]). Provisional data indicate that for 1989 there were 12,370,499 YPLL.

YPLL: Update – Continued

From 1988 to 1989, the YPLL rate for U.S. residents of all ages decreased 0.2%, from 4994 YPLL per 100,000 persons to 4983 per 100,000, respectively. In 1989, unintentional injuries remained the leading cause of YPLL (18%), followed by cancers at all sites (15%), suicide and homicide (12%), diseases of the heart (11%), congenital anomalies (5%), and human immunodeficiency virus (HIV) infection/acquired immunodeficiency syndrome (AIDS) (5%).

TABLE 1. Estimated years of potential life lost before age 65 (YPLL)* and death rates per 100,000 persons, by cause of death — United States, 1988 (final) and 1989 (provisional)

| Cause of death (ICD-9) | YPLL for persons dying in 1988 | YPLL for persons dying in 1989 | Cause-specific crude death rate, 1989† |
|---|--------------------------------|--------------------------------|--|
| All causes (total) | 12,276,554 | 12,370,499 | 868.1 |
| Unintentional injuries (E800–E949) | 2,323,440 | 2,209,993 | 38.2 |
| Malignant neoplasms (140–208) | 1,825,335 | 1,876,515 | 200.3 |
| Suicide/Homicide (E950–E978) | 1,371,394 | 1,432,738 | 21.9 |
| Diseases of the heart (390–398, 402, 404–429) | 1,482,223 | 1,383,355 | 296.3 |
| Congenital anomalies (740–759) | 670,482 | 663,060 | 5.1 |
| Human immunodeficiency virus infection‡ (042–044) | 444,769 | 562,807 | 8.6 |
| Prematurity (765, 769)¶ | 416,441 | 481,204 | 3.0 |
| Sudden infant death syndrome (798) | 353,596 | 325,786 | 2.0 |
| Cerebrovascular disease (430–438) | 249,950 | 234,832 | 59.4 |
| Chronic liver disease and cirrhosis (571) | 235,345 | 223,385 | 10.6 |
| Pneumonia/Influenza (480–487) | 172,013 | 163,738 | 30.3 |
| Diabetes mellitus (250) | 134,304 | 143,659 | 18.8 |
| Chronic obstructive pulmonary disease (490–496) | 133,862 | 140,683 | 34.0 |

*For details of calculation, see footnotes to Table V, *MMWR* 1988;37:45.
†Cause-specific death rates as reported by CDC’s National Center for Health Statistics (NCHS) are compiled from a 10% sample of all deaths.
‡Sources: CDC, unpublished data; NCHS. Annual summary of births, marriages, divorces, and deaths: United States, 1989. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, CDC, 1990. (Monthly vital statistics report; vol 38, no. 13).
¶Category derived from disorders relating to short gestation and respiratory distress syndrome.

YPLL: Update — Continued

From 1988 to 1989, YPLL decreased for seven causes of death and increased for six (Table 1). The YPLL rate decreased 8% for diseases of the heart, 7% for cerebrovascular disease, and 6% each for pneumonia/influenza, chronic liver disease and cirrhosis, and unintentional injuries. YPLL increased 25% for HIV infection/AIDS, 14% for prematurity, 6% for diabetes mellitus, 4% for chronic obstructive pulmonary disease, and 4% for suicide and homicide. In 1989, suicide and homicide together were the third leading cause of YPLL, compared with fourth in 1988.

Reported by: Applications Br, Div of Surveillance and Epidemiology, Epidemiology Program Office, CDC.

Editorial Note: Crude death rates weight all deaths equally (i.e., the rates provide an estimate of the proportion of a population that dies during a specific period); in comparison, YPLL emphasizes deaths among younger persons and provides a measure of the burden of premature mortality (2). YPLL decreased steadily from 1979 through 1987; however, the 1% increase from 1987 to 1988 (1) and the small decrease from 1988 to 1989 suggest that premature mortality has been stable during the past 3 years.

In 1989, the increase in YPLL associated with HIV infection/AIDS reflected the growing impact of HIV infection and AIDS mortality on young adults (3). The recent increase in YPLL for homicide and suicide indicates the increased occurrence of these problems in adolescents and/or young adults, particularly black males (4).

References

1. CDC. Years of potential life lost before ages 65 and 85—United States, 1987 and 1988. MMWR 1990;39:20–2.
2. CDC. Premature mortality in the United States. MMWR 1986;35(no. 2S).
3. CDC. Mortality attributable to HIV infection/AIDS—United States, 1981–1990. MMWR 1991; 40:41–4.
4. CDC. Homicide among young black males—United States, 1978–1987. MMWR 1990;39: 869–73.

Smoking-Attributable Mortality and Years of Potential Life Lost — United States, 1988

Smoking is a leading cause of diseases associated with premature mortality in the United States; in 1985, these diseases accounted for an estimated 390,000 premature deaths (1). In this report, mortality data and estimates of smoking prevalence for 1988 are used to calculate smoking-attributable mortality (SAM), years of potential life lost (YPLL), and age-adjusted SAM and YPLL rates for the United States (2).

Calculations were performed using Smoking-Attributable Mortality, Morbidity, and Economic Cost (SAMMEC II) software (2), which includes relative risk estimates for 22 adult (i.e., ≥ 35 years of age) smoking-related diseases and relative risk estimates for four perinatal (i.e., < 1 year of age) conditions (Table 1). Age-, sex-, and race-specific mortality data for 1988 were obtained from CDC's National Center for Health Statistics. Data on burn deaths caused by cigarettes were obtained from the Federal Emergency Management Agency (3). The estimated number of deaths among nonsmokers from lung cancer attributable to passive smoking was obtained from a report of the National Academy of Sciences (4). Age-, sex-, and race-specific current and former smoking prevalence rates in 1988 for adults aged ≥ 35 years and for women aged 18–44 years were estimated by linear extrapolation using National Health Interview Survey data for 1974–1987 (1,5).

Smoking-Attributable Mortality – Continued

TABLE 1. Relative risks* (RR) for death attributed to smoking and smoking-attributable mortality (SAM) for current and former smokers, by disease category and sex – United States, 1988

| Disease category (ICD-9) | Men | | | Women | | | Total SAM |
|--|-----------------|----------------|----------------|-----------------|----------------|----------------|----------------|
| | RR | | SAM | RR | | SAM | |
| | Current smokers | Former smokers | | Current smokers | Former smokers | | |
| Adult diseases (≥35 yrs of age) | | | | | | | |
| Neoplasms | | | | | | | |
| Lip, oral cavity, pharynx (140–149) | 27.5 | 8.8 | 4,942 | 5.6 | 2.9 | 1,460 | 6,402 |
| Esophagus (150) | 7.6 | 5.8 | 5,478 | 10.3 | 3.2 | 1,609 | 7,087 |
| Pancreas (157) | 2.1 | 1.1 | 2,775 | 2.3 | 1.8 | 3,345 | 6,120 |
| Larynx (161) | 10.5 | 5.2 | 2,401 | 17.8 | 11.9 | 589 | 2,990 |
| Trachea, lung, bronchus (162) | 22.4 | 9.4 | 78,932 | 11.9 | 4.7 | 33,053 | 111,985 |
| Cervix uteri (180) | NA | NA | 0 | 2.1 | 1.9 | 1,246 | 1,246 |
| Urinary bladder (188) | 2.9 | 1.9 | 2,951 | 2.6 | 1.9 | 963 | 3,914 |
| Kidney, other urinary (189) | 3.0 | 2.0 | 2,729 | 1.4 | 1.2 | 363 | 3,092 |
| Cardiovascular diseases | | | | | | | |
| Hypertension (401–404) | 1.9 | 1.3 | 3,441 | 1.7 | 1.2 | 2,254 | 5,695 |
| Ischemic heart disease (410–414) | | | | | | | |
| Persons aged 35–64 yrs | 2.8 | 1.8 | 29,263 | 3.0 | 1.4 | 9,105 | 38,368 |
| Persons aged ≥65 yrs | 1.6 | 1.3 | 41,821 | 1.6 | 1.3 | 27,990 | 69,811 |
| Other heart diseases (390–398, 415–417, 420–429) | 1.9 | 1.3 | 27,503 | 1.7 | 1.2 | 14,638 | 42,141 |
| Cerebrovascular disease (430–438) | | | | | | | |
| Persons aged 35–64 yrs | 3.7 | 1.4 | 5,121 | 4.8 | 1.4 | 4,504 | 9,625 |
| Persons aged ≥65 yrs | 1.9 | 1.3 | 11,554 | 1.5 | 1.0 | 5,134 | 16,688 |
| Atherosclerosis (440) | 4.1 | 2.3 | 4,644 | 3.0 | 1.3 | 3,612 | 8,256 |
| Aortic aneurysm (441) | 4.1 | 2.3 | 5,798 | 3.0 | 1.3 | 1,435 | 7,233 |
| Other arterial disease (442–448) | 4.1 | 2.3 | 1,874 | 3.0 | 1.3 | 1,111 | 2,985 |
| Respiratory diseases | | | | | | | |
| Pneumonia, influenza (480–487) | 2.0 | 1.6 | 11,580 | 2.2 | 1.4 | 8,098 | 19,678 |
| Bronchitis, emphysema (491–492) | 9.7 | 8.8 | 9,670 | 10.5 | 7.0 | 5,269 | 14,939 |
| Chronic airways obstruction (496) | 9.7 | 8.8 | 29,838 | 10.5 | 7.0 | 16,884 | 46,722 |
| Other respiratory diseases (010–012, 493) | 2.0 | 1.6 | 828 | 2.2 | 1.4 | 690 | 1,518 |
| Pediatric diseases (<1 yr of age) | | | | | | | |
| Short gestation, low birth weight (765) | | 1.8 | 344 | | 1.8 | 261 | 605 |
| Respiratory distress syndrome (769) | | 1.8 | 351 | | 1.8 | 233 | 584 |
| Other respiratory conditions of newborn (770) | | 1.8 | 384 | | 1.8 | 277 | 661 |
| Sudden infant death syndrome (798) | | 1.5 | 422 | | 1.5 | 280 | 702 |
| Burn deaths[†] | | | 850 | | | 453 | 1,303 |
| Passive smoking deaths[‡] | | | 1,330 | | | 2,495 | 3,825 |
| Total | | | 286,824 | | | 147,351 | 434,175 |

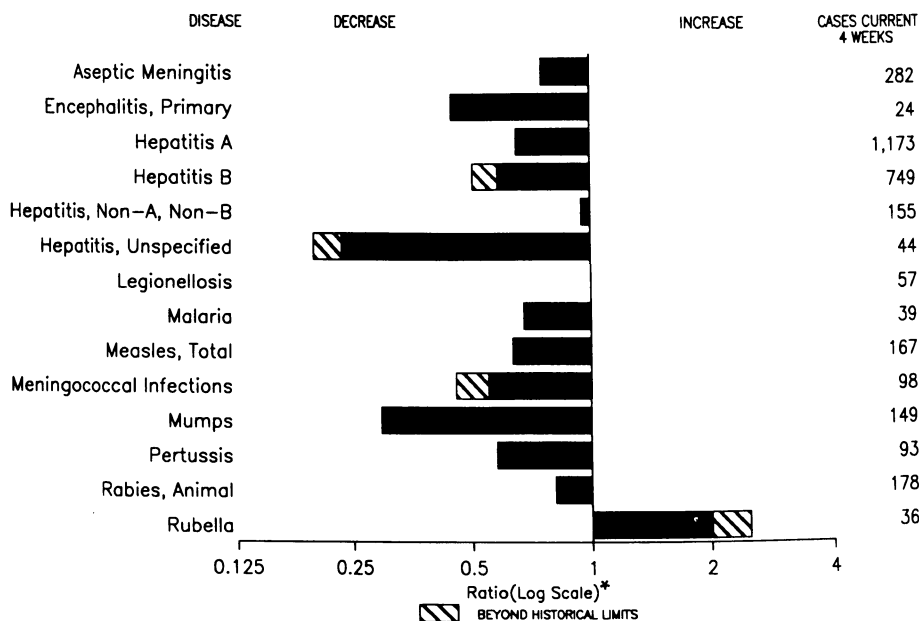
*Relative to never smokers.

†Data from the Federal Emergency Management Agency, 1990 (3).

‡Deaths among nonsmokers from lung cancer attributable to passive smoking (National Academy of Sciences, 1986 [4]).

(Continued on page 69)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending January 26, 1991, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from comparable, previous, and subsequent 4-week periods for past 5 years).

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending January 26, 1991 (4th Week)

| | Cum. 1991 | | Cum. 1991 |
|-------------------------------|-----------|------------------------------------|-----------|
| AIDS | 2,777 | Plague | - |
| Anthrax | - | Poliomyelitis, Paralytic* | - |
| Botulism: Foodborne | - | Psittacosis | 3 |
| Infant | 4 | Rabies, human | - |
| Other | - | Syphilis: civilian | 2,891 |
| Brucellosis | 4 | military | 4 |
| Cholera | - | Syphilis, congenital, age < 1 year | - |
| Congenital rubella syndrome | 2 | Tetanus | - |
| Diphtheria | 1 | Toxic shock syndrome | 22 |
| Encephalitis, post-infectious | 1 | Trichinosis | 1 |
| Gonorrhea: civilian | 36,899 | Tuberculosis | 1,131 |
| military | 521 | Tularemia | 4 |
| Leprosy | 10 | Typhoid fever | 18 |
| Leptospirosis | 7 | Typhus fever, tickborne (RMSF) | 8 |
| Measles: imported | 6 | | |
| indigenous | 167 | | |

*No cases of suspected poliomyelitis have been reported in 1991; none of the 6 suspected cases in 1990 have been confirmed to date. Five of the 13 suspected cases in 1989 were confirmed and all were vaccine associated.

TABLE II. Cases of specified notifiable diseases, United States, weeks ending January 26, 1991, and January 27, 1990 (4th Week)

| Reporting Area | AIDS | Aseptic Mening- itis | Encephalitis | | Gonorrhea (Civilian) | | Hepatitis (Viral), by type | | | | Legionel- losis | Leprosy |
|----------------|-------|----------------------------|--------------|----------------------|-------------------------|--------------|----------------------------|--------------|--------------|------------------|--------------------|---------|
| | | | Primary | Post-in- fectious | Cum. 1991 | Cum. 1990 | A | B | NA,NB | Unspeci- fied | | |
| | | | | | | | Cum. 1991 | Cum. 1991 | Cum. 1991 | Cum. 1991 | | |
| UNITED STATES | 2,777 | 322 | 27 | 1 | 36,899 | 50,662 | 1,277 | 818 | 190 | 58 | 57 | 10 |
| NEW ENGLAND | 144 | 18 | 2 | - | 1,562 | 1,493 | 34 | 58 | 8 | 2 | 6 | - |
| Maine | 12 | - | 1 | - | 6 | 12 | 2 | 1 | 1 | - | - | - |
| N.H. | 5 | 1 | - | - | 6 | 18 | 2 | 4 | 1 | - | 1 | - |
| Vt. | 3 | - | - | - | 8 | 8 | - | - | - | - | - | - |
| Mass. | 70 | 7 | 1 | - | 522 | 460 | 23 | 48 | 6 | 1 | 5 | - |
| R.I. | 8 | 10 | - | - | 61 | 81 | 7 | 5 | - | 1 | - | - |
| Conn. | 46 | - | - | - | 959 | 914 | - | - | - | - | - | - |
| MID. ATLANTIC | 750 | 35 | 2 | - | 3,167 | 5,263 | 81 | 48 | 6 | - | 6 | - |
| Upstate N.Y. | 119 | 16 | 1 | - | 590 | 657 | 55 | 26 | 3 | - | 2 | - |
| N.Y. City | 406 | - | - | - | - | 2,628 | - | - | - | - | - | - |
| N.J. | 220 | - | - | - | 759 | 1,219 | 10 | 4 | 1 | - | - | - |
| Pa. | 5 | 19 | 1 | - | 1,818 | 759 | 16 | 18 | 2 | - | 4 | - |
| E.N. CENTRAL | 248 | 42 | 1 | 1 | 5,140 | 10,367 | 93 | 84 | 35 | 6 | 9 | - |
| Ohio | 47 | 25 | - | 1 | - | 3,273 | 50 | 31 | 11 | 3 | 7 | - |
| Ind. | 24 | 2 | - | - | 1,013 | 941 | 11 | 6 | - | - | - | - |
| Ill. | 107 | - | - | - | 2,320 | 2,917 | - | - | - | - | - | - |
| Mich. | 55 | 15 | 1 | - | 1,666 | 2,560 | 18 | 40 | 6 | 3 | 2 | - |
| Wis. | 15 | - | - | - | 141 | 676 | 14 | 7 | 18 | - | - | - |
| W.N. CENTRAL | 141 | 35 | 2 | - | 1,898 | 2,865 | 197 | 15 | 8 | - | 5 | - |
| Minn. | 34 | 8 | 1 | - | 173 | 381 | 2 | - | - | - | - | - |
| Iowa | 14 | 9 | - | - | 139 | 252 | 5 | 1 | - | - | - | - |
| Mo. | 79 | 2 | - | - | 1,112 | 1,483 | 4 | 2 | 2 | - | 2 | - |
| N. Dak. | - | - | - | - | - | 22 | - | - | - | - | - | - |
| S. Dak. | - | 3 | 1 | - | 22 | 23 | 131 | - | - | - | 1 | - |
| Nebr. | 4 | 6 | - | - | 200 | 99 | 28 | 5 | - | - | 2 | - |
| Kans. | 10 | 7 | - | - | 252 | 605 | 27 | 7 | 6 | - | - | - |
| S. ATLANTIC | 622 | 81 | 6 | - | 13,800 | 15,148 | 68 | 195 | 28 | 3 | 9 | - |
| Del. | 5 | 3 | - | - | 121 | 165 | 4 | 9 | 1 | - | - | - |
| Md. | 79 | 11 | 2 | - | 1,555 | 1,604 | 20 | 28 | 7 | 1 | 2 | - |
| D.C. | 44 | 5 | - | - | 862 | 825 | 4 | 10 | - | 1 | - | - |
| Va. | 30 | 8 | - | - | 1,135 | 1,335 | 4 | 13 | 1 | - | 1 | - |
| W. Va. | 5 | 1 | 1 | - | 115 | 111 | 2 | 4 | - | 1 | - | - |
| N.C. | 40 | 39 | 2 | - | 2,703 | 2,890 | 22 | 56 | 17 | - | 3 | - |
| S.C. | 22 | 3 | - | - | 1,329 | 1,583 | 5 | 43 | 1 | - | 2 | - |
| Ga. | 108 | - | 1 | - | 3,350 | 3,458 | 3 | 25 | - | - | 1 | - |
| Fla. | 289 | 11 | - | - | 2,630 | 3,177 | 4 | 7 | 1 | - | - | - |
| E.S. CENTRAL | 76 | 25 | 1 | - | 3,313 | 4,385 | 20 | 86 | 33 | 2 | 7 | - |
| Ky. | 1 | 9 | - | - | 381 | 445 | 4 | 20 | 1 | 2 | 4 | - |
| Tenn. | 28 | 12 | 1 | - | 1,029 | 1,145 | 10 | 59 | 32 | - | 2 | - |
| Ala. | 29 | 3 | - | - | 1,111 | 1,865 | 6 | 7 | - | - | 1 | - |
| Miss. | 18 | 1 | - | - | 792 | 930 | - | - | - | - | - | - |
| W.S. CENTRAL | 246 | 28 | 4 | - | 3,252 | 4,335 | 87 | 60 | 5 | 5 | 3 | 2 |
| Ark. | - | 23 | - | - | 387 | 749 | 16 | - | - | - | - | - |
| La. | 33 | 2 | - | - | 750 | 756 | 9 | 26 | 1 | - | 1 | - |
| Okla. | 5 | 1 | 3 | - | 398 | 392 | 30 | 23 | 4 | 3 | 2 | - |
| Tex. | 208 | 2 | 1 | - | 1,717 | 2,438 | 32 | 11 | - | 2 | - | 2 |
| MOUNTAIN | 87 | 11 | 2 | - | 785 | 1,153 | 246 | 61 | 11 | 9 | 9 | - |
| Mont. | 5 | 1 | - | - | 5 | 10 | 12 | 10 | - | 2 | - | - |
| Idaho | 1 | - | - | - | 6 | 5 | 4 | 3 | - | - | - | - |
| Wyo. | 3 | - | - | - | 4 | 12 | 1 | - | - | - | - | - |
| Colo. | 47 | 2 | - | - | 159 | 343 | 7 | 8 | 2 | 1 | 1 | - |
| N. Mex. | 10 | - | - | - | 63 | 80 | 67 | 3 | - | 2 | - | - |
| Ariz. | - | 4 | 2 | - | 380 | 437 | 99 | 23 | 3 | 1 | 2 | - |
| Utah | 4 | 2 | - | - | 30 | 31 | 48 | 4 | 3 | 3 | 4 | - |
| Nev. | 17 | 2 | - | - | 138 | 235 | 8 | 10 | 3 | - | 2 | - |
| PACIFIC | 463 | 47 | 7 | - | 3,982 | 5,653 | 451 | 211 | 56 | 31 | 3 | 8 |
| Wash. | 35 | - | - | - | 324 | 592 | 47 | 31 | 5 | 1 | - | - |
| Oreg. | - | - | - | - | 164 | 216 | 26 | 15 | 6 | 1 | - | - |
| Calif. | 407 | 44 | 7 | - | 3,425 | 4,725 | 369 | 160 | 44 | 28 | 3 | 8 |
| Alaska | 2 | - | - | - | 50 | 104 | 6 | 4 | 1 | 1 | - | - |
| Hawaii | 19 | 3 | - | - | 19 | 16 | 3 | 1 | - | - | - | - |
| Guam | - | - | - | - | - | 18 | - | - | - | - | - | - |
| P.R. | 136 | - | - | - | - | 134 | - | - | - | - | - | - |
| V.I. | - | - | - | - | 28 | 27 | - | 1 | - | - | - | - |
| Amer. Samoa | - | - | - | - | - | 9 | - | - | - | - | - | - |
| C.N.M.I. | - | - | - | - | - | 18 | - | - | - | - | - | - |

N: Not notifiable

U: Unavailable

C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending January 26, 1991, and January 27, 1990 (4th Week)

| Reporting Area | Malaria | Measles (Rubeola) | | | | | Menin- gococcal Infections | Mumps | | Pertussis | | | Rubella | | |
|----------------|--------------|-------------------|--------------|-----------|--------------|--------------|----------------------------------|-------|--------------|-----------|--------------|--------------|---------|--------------|--------------|
| | | Indigenous | | Imported* | | Total | | | | | | | | | |
| | Cum. 1991 | 1991 | Cum. 1991 | 1991 | Cum. 1991 | Cum. 1990 | Cum. 1991 | 1991 | Cum. 1991 | 1991 | Cum. 1991 | Cum. 1990 | 1991 | Cum. 1991 | Cum. 1990 |
| UNITED STATES | 44 | 79 | 167 | - | 6 | 810 | 108 | 49 | 159 | 23 | 102 | 190 | 28 | 36 | 25 |
| NEW ENGLAND | 6 | - | - | - | - | 8 | 14 | - | 1 | 1 | 8 | 37 | - | - | 1 |
| Maine | - | - | - | - | - | 1 | - | - | - | - | 1 | 1 | - | - | - |
| N.H. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vt. | 1 | - | - | - | - | 1 | 3 | - | - | 1 | 7 | - | - | - | - |
| Mass. | 3 | - | - | - | - | - | 1 | - | - | - | - | 1 | - | - | - |
| R.I. | 2 | - | - | - | - | - | 10 | - | - | - | - | 35 | - | - | - |
| Conn. | - | - | - | - | - | 6 | - | - | 1 | - | - | - | - | - | 1 |
| MID. ATLANTIC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Upstate N.Y. | - | 46 | 74 | - | - | 33 | 12 | 3 | 14 | 2 | 22 | 19 | - | - | - |
| N.Y. City | - | - | - | - | - | 3 | 7 | 3 | 6 | 2 | 7 | 6 | - | - | - |
| N.J. | - | - | - | - | - | 4 | - | - | - | - | - | - | - | - | - |
| Pa. | - | 46 | 71 | - | - | 8 | 1 | - | - | - | 1 | 7 | - | - | - |
| E.N. CENTRAL | - | - | - | - | - | 18 | 4 | - | 8 | - | 14 | 6 | - | - | - |
| Ohio | 2 | - | 1 | - | 1 | 558 | 9 | 1 | 18 | 1 | 9 | 64 | - | - | 3 |
| Ind. | - | - | - | - | - | - | 3 | - | - | - | 7 | - | - | - | - |
| Ill. | 1 | - | - | - | - | 3 | - | - | - | - | - | 26 | - | - | - |
| Mich. | - | - | - | - | - | 244 | - | - | 8 | - | - | 12 | - | - | 3 |
| Wis. | 1 | - | 1 | - | - | 76 | 6 | 1 | 9 | 1 | 2 | 8 | - | - | - |
| W.N. CENTRAL | - | - | - | - | 1 | 235 | - | - | 1 | - | - | 18 | - | - | - |
| Minn. | - | - | - | - | - | 36 | 3 | 1 | 7 | 2 | 14 | 7 | - | 1 | - |
| Iowa | - | - | - | - | - | - | - | 1 | 2 | 1 | 7 | 1 | - | 1 | - |
| Mo. | - | - | - | - | - | 19 | - | - | 2 | 1 | 3 | - | - | - | - |
| N. Dak. | - | - | - | - | - | 17 | - | - | - | - | 1 | 4 | - | - | - |
| S. Dak. | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - |
| Nebr. | - | - | - | - | - | - | 1 | - | - | - | 1 | - | - | - | - |
| Kans. | - | - | - | - | - | - | - | - | - | - | 1 | 1 | - | - | - |
| S. ATLANTIC | - | - | - | - | - | - | 2 | - | 3 | - | 1 | - | - | - | - |
| S. ATLANTIC | 8 | - | 1 | - | - | 21 | 23 | 27 | 62 | 5 | 6 | 25 | 1 | 4 | - |
| Del. | - | - | - | - | - | 1 | - | - | - | - | - | 2 | - | - | - |
| Md. | 3 | - | - | - | - | 12 | 4 | 1 | 26 | - | - | 10 | - | 3 | - |
| D.C. | - | - | - | - | - | - | - | - | 3 | - | - | 1 | - | - | - |
| Va. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| W. Va. | - | - | - | - | - | 4 | 1 | 1 | 5 | - | 1 | 1 | - | - | - |
| N.C. | 1 | - | - | - | - | - | 1 | - | 1 | - | - | 3 | - | - | - |
| S.C. | - | - | - | - | - | - | 8 | 20 | 20 | 5 | 5 | 4 | 1 | 1 | - |
| Ga. | 1 | - | - | - | - | - | 2 | 4 | 4 | - | - | - | - | - | - |
| Fla. | 2 | - | - | - | - | - | 3 | - | - | - | - | 2 | - | - | - |
| E.S. CENTRAL | 1 | - | 1 | - | - | 4 | 4 | 1 | 3 | - | - | 2 | - | - | - |
| Ky. | 1 | - | - | - | - | 12 | 11 | 1 | 2 | 2 | 4 | 9 | - | - | - |
| Tenn. | - | - | - | - | - | - | 3 | - | - | - | - | - | - | - | - |
| Ala. | - | - | - | - | - | 9 | 2 | - | - | 1 | 2 | 1 | - | - | - |
| Miss. | 1 | - | - | - | - | - | 6 | - | 1 | 1 | 2 | 8 | - | - | - |
| W.S. CENTRAL | - | - | - | - | - | 3 | - | 1 | 1 | - | - | - | - | - | - |
| W.S. CENTRAL | 1 | - | - | - | 4 | - | 4 | 4 | 6 | 1 | 6 | 1 | - | - | - |
| Ark. | - | - | - | - | 4 | - | - | - | - | - | - | - | - | - | - |
| La. | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Okla. | - | - | - | - | - | - | 4 | 1 | 2 | 1 | 6 | 1 | - | - | - |
| Tex. | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - |
| MOUNTAIN | - | - | - | - | - | - | - | 3 | 3 | - | - | - | - | - | - |
| MOUNTAIN | 1 | 2 | 10 | - | - | 6 | 6 | 1 | 11 | 1 | 10 | 4 | - | 1 | - |
| Mont. | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - |
| Idaho | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Wyo. | - | U | - | U | - | - | - | U | - | U | - | - | U | - | - |
| Colo. | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N. Mex. | - | - | - | - | - | - | 2 | 1 | 2 | - | 3 | - | - | - | - |
| Ariz. | - | 2 | 4 | - | - | - | - | N | N | 1 | 2 | - | - | - | - |
| Utah | - | - | 1 | - | - | 6 | 3 | - | 9 | - | 5 | 3 | - | - | - |
| Nev. | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - |
| PACIFIC | - | - | 5 | - | - | - | - | - | - | - | - | - | - | 1 | - |
| PACIFIC | 25 | 31 | 81 | - | 1 | 136 | 26 | 11 | 38 | 8 | 23 | 24 | 27 | 30 | 21 |
| Wash. | 2 | - | - | - | - | 7 | 2 | 1 | 3 | - | - | 2 | - | - | - |
| Oreg. | 1 | - | - | - | - | 1 | 5 | N | N | 3 | 4 | 5 | - | - | - |
| Calif. | 21 | 30 | 79 | - | 1 | 128 | 18 | 10 | 30 | 3 | 10 | 15 | 27 | 30 | 19 |
| Alaska | - | - | - | - | - | - | - | - | 3 | - | 1 | - | - | - | - |
| Hawaii | 1 | 1 | 2 | - | - | - | 1 | - | - | 2 | 8 | 2 | - | - | 2 |
| Guam | - | U | - | U | - | - | - | U | - | U | - | - | U | - | - |
| P.R. | - | U | - | U | - | 1 | - | U | - | U | - | - | U | - | - |
| V.I. | - | U | - | U | - | - | - | U | - | U | - | - | U | - | - |
| Amer. Samoa | - | U | - | U | - | - | - | U | - | U | - | - | U | - | - |
| C.N.M.I. | - | U | - | U | - | - | - | U | - | U | - | - | U | - | - |

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable ¹International ²Out-of-state

TABLE II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending January 26, 1991, and January 27, 1990 (4th Week)

| Reporting Area | Syphilis (Civilian) (Primary & Secondary) | | Toxic- shock Syndrome | Tuberculosis | | Tula- remia | Typhoid Fever | Typhus Fever (Tick-borne) (RMSF) | Rabies, Animal |
|----------------|--|--------------|-----------------------------|--------------|--------------|----------------|------------------|--|-------------------|
| | Cum. 1991 | Cum. 1990 | Cum. 1991 | Cum. 1991 | Cum. 1990 | Cum. 1991 | Cum. 1991 | Cum. 1991 | Cum. 1991 |
| UNITED STATES | 2,891 | 2,944 | 22 | 1,131 | 1,244 | 4 | 18 | 8 | 215 |
| NEW ENGLAND | 80 | 142 | 3 | 28 | 7 | - | 3 | 1 | - |
| Maine | - | 1 | 2 | - | - | - | - | - | - |
| N.H. | - | 23 | - | - | 1 | - | - | - | - |
| Vt. | 1 | - | - | - | - | - | - | - | - |
| Mass. | 42 | 39 | 1 | 8 | - | - | 3 | 1 | - |
| R.I. | 2 | - | - | 6 | 1 | - | - | - | - |
| Conn. | 35 | 79 | - | 14 | 5 | - | - | - | - |
| MID. ATLANTIC | 612 | 586 | 4 | 174 | 370 | - | - | - | 101 |
| Upstate N.Y. | 22 | 19 | 2 | - | 25 | - | - | - | 24 |
| N.Y. City | 291 | 434 | - | 127 | 278 | - | - | - | - |
| N.J. | 91 | 108 | - | 35 | 33 | - | - | - | 38 |
| Pa. | 208 | 25 | 2 | 12 | 34 | - | - | - | 39 |
| E.N. CENTRAL | 267 | 130 | 4 | 121 | 135 | - | 1 | - | 2 |
| Ohio | 8 | 38 | 3 | 47 | 9 | - | - | - | - |
| Ind. | 19 | 1 | - | 2 | 11 | - | - | - | - |
| Ill. | 194 | 54 | - | 63 | 84 | - | - | - | - |
| Mich. | 18 | 7 | 1 | - | 24 | - | 1 | - | - |
| Wis. | 28 | 30 | - | 9 | 7 | - | - | - | 2 |
| W.N. CENTRAL | 42 | 32 | 5 | 25 | 26 | 2 | - | 1 | 16 |
| Minn. | 7 | 11 | 3 | - | 9 | - | - | - | 10 |
| Iowa | 2 | 3 | 2 | 8 | 1 | - | - | - | - |
| Mo. | 33 | 14 | - | 12 | 7 | - | - | - | - |
| N. Dak. | - | 1 | - | 2 | 3 | - | - | - | 5 |
| S. Dak. | - | - | - | 1 | 2 | - | - | - | - |
| Nebr. | - | - | - | - | 4 | - | - | - | 1 |
| Kans. | - | 3 | - | 2 | - | 2 | - | 1 | - |
| S. ATLANTIC | 866 | 1,066 | 1 | 124 | 164 | - | 4 | 3 | 62 |
| Del. | 8 | 13 | - | 3 | 4 | - | - | - | 7 |
| Md. | 97 | 86 | - | 14 | 21 | - | 2 | - | 23 |
| D.C. | 50 | 42 | - | 11 | - | - | - | - | - |
| Va. | 67 | 56 | - | 7 | 13 | - | - | - | 8 |
| W. Va. | 1 | 1 | - | 6 | 3 | - | - | - | 5 |
| N.C. | 115 | 127 | 1 | 38 | 15 | - | - | 3 | - |
| S.C. | 111 | 81 | - | 18 | 31 | - | - | - | 4 |
| Ga. | 201 | 310 | - | 17 | 20 | - | 2 | - | 15 |
| Fla. | 216 | 350 | - | 10 | 57 | - | - | - | - |
| E.S. CENTRAL | 322 | 305 | - | 74 | 54 | - | - | 2 | 6 |
| Ky. | 5 | - | - | 13 | 28 | - | - | 1 | 1 |
| Tenn. | 169 | 134 | - | - | 4 | - | - | - | - |
| Ala. | 80 | 94 | - | 35 | 21 | - | - | 1 | 5 |
| Miss. | 68 | 77 | - | 26 | 1 | - | - | - | - |
| W.S. CENTRAL | 339 | 322 | 1 | 101 | 130 | 1 | - | 1 | 16 |
| Ark. | 19 | 28 | - | 9 | 24 | 1 | - | - | 3 |
| La. | 120 | 144 | - | 46 | 51 | - | - | - | 1 |
| Okl. | 11 | 19 | 1 | 2 | 2 | - | - | 1 | 6 |
| Tex. | 189 | 131 | - | 44 | 53 | - | - | - | 6 |
| MOUNTAIN | 54 | 46 | - | 44 | 21 | 1 | - | - | 3 |
| Mont. | - | - | - | - | - | 1 | - | - | 2 |
| Idaho | - | 1 | - | - | - | - | - | - | - |
| Wyo. | 1 | - | - | - | - | - | - | - | - |
| Colo. | 8 | 4 | - | 6 | - | - | - | - | - |
| N. Mex. | 3 | 7 | - | - | 7 | - | - | - | - |
| Ariz. | 42 | 22 | - | 27 | 6 | - | - | - | 1 |
| Utah | - | 1 | - | 10 | - | - | - | - | - |
| Nev. | - | 11 | - | 1 | 8 | - | - | - | - |
| PACIFIC | 309 | 315 | 4 | 440 | 337 | - | 10 | - | 9 |
| Wash. | - | 36 | - | 11 | 18 | - | - | - | - |
| Oreg. | 3 | 4 | - | 6 | 10 | - | - | - | - |
| Calif. | 305 | 271 | 4 | 408 | 284 | - | 9 | - | 9 |
| Alaska | 1 | 1 | - | 1 | 7 | - | - | - | - |
| Hawaii | - | 3 | - | 14 | 18 | - | 1 | - | - |
| Guam | - | - | - | - | 6 | - | - | - | - |
| P.R. | - | 41 | - | - | 1 | - | - | - | - |
| V.I. | - | - | - | - | - | - | - | - | - |
| Amer. Samoa | - | - | - | - | - | - | - | - | - |
| C.N.M.I. | - | - | - | - | 6 | - | - | - | - |

U: Unavailable

**TABLE III. Deaths in 121 U.S. cities,* week ending
January 26, 1991 (4th Week)**

| Reporting Area | All Causes, By Age (Years) | | | | | | P&I** Total | Reporting Area | All Causes, By Age (Years) | | | | | | P&I** Total |
|----------------------|----------------------------|-------|-------|-------|------|-----|----------------|-----------------------|----------------------------|-------|-------|-------|------|-----|----------------|
| | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | <1 | | | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | <1 | |
| NEW ENGLAND | 680 | 487 | 113 | 53 | 15 | 12 | 75 | S. ATLANTIC | 1,420 | 928 | 280 | 145 | 35 | 32 | 96 |
| Boston, Mass. | 186 | 123 | 31 | 23 | 6 | 3 | 20 | Atlanta, Ga. | 185 | 116 | 39 | 23 | 1 | 6 | 11 |
| Bridgeport, Conn. | 58 | 39 | 13 | 4 | 2 | - | 7 | Baltimore, Md. | 340 | 211 | 69 | 41 | 13 | 6 | 25 |
| Cambridge, Mass. | 26 | 21 | 3 | 1 | 1 | - | 4 | Charlotte, N.C. | 90 | 63 | 16 | 9 | 2 | - | 4 |
| Fall River, Mass. | 30 | 24 | 3 | 2 | - | 1 | - | Jacksonville, Fla. | 130 | 77 | 33 | 13 | 4 | 3 | 9 |
| Hartford, Conn. | 53 | 37 | 9 | 6 | 1 | - | 2 | Miami, Fla. | 109 | 67 | 19 | 18 | 3 | 2 | 2 |
| Lowell, Mass. | 20 | 16 | 3 | - | - | 1 | 1 | Norfolk, Va. | 83 | 54 | 12 | 7 | 3 | 7 | 10 |
| Lynn, Mass. | 18 | 14 | 2 | 1 | 1 | - | 1 | Richmond, Va. | 120 | 81 | 31 | 5 | 1 | 2 | 8 |
| New Bedford, Mass. | 29 | 23 | 3 | 3 | - | - | 6 | Savannah, Ga. | 100 | 75 | 13 | 8 | 3 | 1 | 8 |
| New Haven, Conn. | 49 | 33 | 10 | 3 | 2 | 1 | 7 | St. Petersburg, Fla. | 66 | 57 | 6 | 2 | 1 | - | 9 |
| Providence, R.I. | 49 | 35 | 13 | - | - | 1 | 3 | Tampa, Fla. | 163 | 108 | 34 | 15 | 3 | 3 | 10 |
| Somerville, Mass. | 6 | 4 | - | 2 | - | - | - | Washington, D.C.‡ | U | U | U | U | U | U | U |
| Springfield, Mass. | 46 | 34 | 8 | 2 | - | 2 | 7 | Wilmington, Del. | 34 | 19 | 8 | 4 | 1 | 2 | - |
| Waterbury, Conn. | 36 | 24 | 6 | 3 | 2 | 1 | 3 | E.S. CENTRAL | 608 | 415 | 110 | 46 | 15 | 22 | 47 |
| Worcester, Mass. | 74 | 60 | 9 | 3 | - | 2 | 14 | Birmingham, Ala.‡ | U | U | U | U | U | U | U |
| MID. ATLANTIC | 2,937 | 1,933 | 589 | 300 | 51 | 63 | 193 | Chattanooga, Tenn. | 61 | 47 | 8 | 3 | 1 | 2 | 5 |
| Albany, N.Y. | 60 | 44 | 10 | 3 | 1 | 2 | 2 | Knoxville, Tenn. | 103 | 77 | 17 | 7 | 1 | 1 | 12 |
| Allentown, Pa. | 21 | 17 | 2 | 2 | - | - | 2 | Louisville, Ky. | 51 | 30 | 11 | 3 | 2 | 5 | 1 |
| Buffalo, N.Y.‡ | U | U | U | U | U | U | U | Memphis, Tenn. | 215 | 142 | 37 | 19 | 9 | 8 | 17 |
| Camden, N.J. | 30 | 19 | 7 | 2 | - | 2 | 3 | Mobile, Ala. | 51 | 36 | 8 | 4 | 1 | 2 | 4 |
| Elizabeth, N.J. | 32 | 19 | 10 | 2 | 1 | - | 2 | Montgomery, Ala.‡ | U | U | U | U | U | U | U |
| Erie, Pa.† | 44 | 41 | 1 | 1 | - | - | 5 | Nashville, Tenn. | 127 | 83 | 29 | 10 | 1 | 4 | 8 |
| Jersey City, N.J. | 59 | 42 | 12 | 3 | - | 2 | - | W.S. CENTRAL | 1,574 | 978 | 318 | 155 | 63 | 60 | 118 |
| N.Y. City, N.Y. | 1,532 | 986 | 309 | 188 | 25 | 24 | 87 | Austin, Tex. | 75 | 46 | 13 | 10 | 3 | 3 | 8 |
| Newark, N.J. | 61 | 28 | 13 | 7 | 5 | 8 | 8 | Baton Rouge, La. | 49 | 29 | 12 | 4 | 2 | 2 | 7 |
| Paterson, N.J. | 31 | 16 | 7 | 5 | 1 | 2 | 3 | Corpus Christi, Tex. | 48 | 32 | 7 | 6 | 2 | 1 | 4 |
| Philadelphia, Pa. | 594 | 366 | 138 | 63 | 15 | 11 | 37 | Dallas, Tex. | 209 | 125 | 36 | 26 | 14 | 8 | 7 |
| Pittsburgh, Pa.† | 104 | 76 | 18 | 5 | - | 5 | 6 | El Paso, Tex. | 81 | 52 | 15 | 6 | 5 | 3 | 4 |
| Reading, Pa. | 39 | 35 | 4 | - | - | - | 9 | Fort Worth, Tex. | 93 | 61 | 15 | 9 | 3 | 5 | 6 |
| Rochester, N.Y. | 110 | 81 | 23 | 4 | - | 2 | 14 | Houston, Tex. | 454 | 262 | 101 | 52 | 24 | 15 | 47 |
| Schenectady, N.Y. | 25 | 19 | 6 | - | - | - | - | Little Rock, Ark. | 67 | 43 | 12 | 5 | - | 7 | 4 |
| Scranton, Pa.† | 50 | 41 | 7 | 2 | - | - | 4 | New Orleans, La. | 124 | 69 | 32 | 17 | 3 | 3 | - |
| Syracuse, N.Y. | 44 | 32 | 7 | 2 | - | 3 | 4 | San Antonio, Tex. | 202 | 138 | 41 | 14 | 5 | 4 | 10 |
| Trenton, N.J. | 34 | 27 | 2 | 2 | 2 | 1 | 2 | Shreveport, La. | 64 | 42 | 11 | 3 | - | 8 | 9 |
| Utica, N.Y. | 20 | 13 | 4 | 3 | - | - | - | Tulsa, Okla. | 108 | 79 | 23 | 3 | 2 | 1 | 12 |
| Yonkers, N.Y. | 47 | 31 | 9 | 6 | 1 | - | 5 | MOUNTAIN | 695 | 442 | 141 | 66 | 23 | 23 | 52 |
| E.N. CENTRAL | 3,059 | 2,168 | 491 | 150 | 82 | 168 | 137 | Albuquerque, N. Mex. | 73 | 51 | 10 | 8 | 2 | 2 | 3 |
| Akron, Ohio | 50 | 36 | 8 | 3 | 2 | 1 | - | Colo. Springs, Colo. | 45 | 25 | 12 | 4 | 3 | 1 | 2 |
| Canton, Ohio | 52 | 35 | 15 | 1 | - | 1 | 6 | Denver, Colo. | 106 | 75 | 18 | 9 | 1 | 3 | 10 |
| Chicago, Ill. | 1,295 | 958 | 155 | 25 | 44 | 113 | 34 | Las Vegas, Nev. | 122 | 77 | 28 | 15 | - | 2 | 6 |
| Cincinnati, Ohio | 140 | 95 | 33 | 4 | 4 | 4 | 13 | Ogden, Utah | 19 | 13 | 3 | 1 | 1 | 1 | 1 |
| Cleveland, Ohio | 139 | 84 | 30 | 14 | 1 | 10 | 2 | Phoenix, Ariz. | 122 | 70 | 32 | 10 | 6 | 4 | 5 |
| Columbus, Ohio | 164 | 105 | 35 | 11 | 9 | 4 | 5 | Pueblo, Colo. | 20 | 15 | 4 | 1 | - | - | 1 |
| Dayton, Ohio | 110 | 77 | 25 | 6 | - | 2 | 8 | Salt Lake City, Utah | 55 | 23 | 14 | 7 | 6 | 5 | 8 |
| Detroit, Mich. | 243 | 141 | 55 | 31 | 8 | 8 | 9 | Tucson, Ariz. | 133 | 93 | 20 | 11 | 4 | 5 | 16 |
| Evansville, Ind. | 45 | 33 | 9 | 2 | 1 | - | 5 | PACIFIC | 1,844 | 1,233 | 335 | 186 | 41 | 38 | 133 |
| Fort Wayne, Ind. | 64 | 50 | 9 | 2 | 2 | 1 | 2 | Berkeley, Calif. | 23 | 19 | 3 | - | 1 | - | 1 |
| Gary, Ind. | 21 | 7 | 6 | 4 | - | 4 | - | Fresno, Calif. | 59 | 36 | 11 | 6 | 2 | 4 | 11 |
| Grand Rapids, Mich. | 56 | 42 | 8 | 4 | - | 2 | 8 | Glendale, Calif. | 21 | 16 | 3 | 1 | - | - | 1 |
| Indianapolis, Ind. | 162 | 106 | 32 | 13 | 6 | 5 | 11 | Honolulu, Hawaii | 100 | 73 | 19 | 7 | - | 1 | 6 |
| Madison, Wis. | 43 | 31 | 5 | 3 | 3 | 1 | 7 | Long Beach, Calif. | 77 | 49 | 20 | 3 | 2 | 3 | 7 |
| Milwaukee, Wis. | 186 | 146 | 28 | 8 | - | 4 | 9 | Los Angeles, Calif. | 403 | 235 | 83 | 58 | 14 | 5 | 11 |
| Peoria, Ill. | 40 | 28 | 5 | 3 | 1 | 3 | 4 | Oakland, Calif.‡ | U | U | U | U | U | U | U |
| Rockford, Ill. | 58 | 37 | 11 | 7 | 1 | 2 | 3 | Pasadena, Calif. | 34 | 27 | 4 | 1 | 1 | 1 | 5 |
| South Bend, Ind. | 55 | 44 | 7 | 3 | - | 1 | 4 | Portland, Ore. | 156 | 114 | 24 | 11 | 3 | 4 | 13 |
| Toledo, Ohio | 70 | 58 | 7 | 4 | - | 1 | 5 | Sacramento, Calif. | 177 | 114 | 32 | 21 | 5 | 5 | 23 |
| Youngstown, Ohio | 66 | 55 | 8 | 2 | - | 1 | 2 | San Diego, Calif. | 113 | 72 | 23 | 12 | 2 | 4 | 9 |
| W.N. CENTRAL | 800 | 576 | 135 | 54 | 19 | 16 | 61 | San Francisco, Calif. | 175 | 105 | 30 | 32 | 3 | 3 | 7 |
| Des Moines, Iowa | 72 | 62 | 7 | 3 | - | - | 2 | San Jose, Calif. | 239 | 178 | 38 | 15 | 3 | 5 | 24 |
| Duluth, Minn. | 28 | 24 | 3 | 1 | - | - | 1 | Seattle, Wash. | 139 | 99 | 26 | 10 | 2 | 2 | 2 |
| Kansas City, Kans. | 49 | 24 | 15 | 6 | 2 | 2 | 2 | Spokane, Wash. | 62 | 45 | 12 | 3 | 2 | - | 3 |
| Kansas City, Mo. | 129 | 86 | 30 | 8 | 4 | 1 | 14 | Tacoma, Wash. | 66 | 51 | 7 | 6 | 1 | 1 | 10 |
| Lincoln, Nebr. | 44 | 36 | 6 | 2 | - | - | 7 | TOTAL | 13,617 ^{††} | 9,160 | 2,512 | 1,155 | 344 | 434 | 912 |
| Minneapolis, Minn. | 175 | 125 | 30 | 14 | 5 | 1 | 17 | | | | | | | | |
| Omaha, Nebr. | 73 | 54 | 14 | 3 | - | 2 | 3 | | | | | | | | |
| St. Louis, Mo. | 100 | 65 | 16 | 8 | 5 | 6 | 8 | | | | | | | | |
| St. Paul, Minn. | 76 | 64 | 6 | 3 | 1 | 2 | 6 | | | | | | | | |
| Wichita, Kans. | 54 | 36 | 8 | 6 | 2 | 2 | 1 | | | | | | | | |

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

‡Report for this week is unavailable (U).

Smoking-Attributable Mortality – Continued

YPLL before age 65 and before age 85 were calculated according to standard methods (2). Age-adjusted SAM and YPLL rates were calculated by the direct method and standardized to the 1980 U.S. population. YPLL estimates do not include deaths related to passive smoking.

Based on these calculations, in 1988, approximately 434,000 deaths and 1,199,000 YPLL before age 65 (6,028,000 before age 85) were attributable to cigarette smoking (Tables 1 and 2). Although SAM for blacks represented 11% of total SAM, the SAM rate for blacks was 12% higher than for whites. The SAM for men was 66% of total SAM, and the SAM rate for men was more than twice the rate for women (Tables 2 and 3). In addition, the rate of smoking-attributable YPLL before age 65 for blacks was twice that for whites, and the smoking-attributable YPLL rate for men was almost three times that for women. For YPLL before age 85, the rate for blacks was 52% higher than for whites, and for men, more than twice that for women (Table 3).

Reported by: JM Shultz, PhD, Univ of Miami School of Medicine, Miami, Florida. Program Svcs Activity, Office on Smoking and Health, Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: For 1988, total estimated smoking-attributable deaths (434,000) were substantially higher than for 1985 (390,000) (1). Although SAM from ischemic heart disease declined between 1985 and 1988, SAM from lung cancer and chronic obstructive pulmonary disease was higher. Several heart disease categories (*International Classification of Diseases, Ninth Revision* [ICD-9] rubrics 390–398, 415–417, 420–429) were included in the calculations for 1988 but not for 1985, contributing to the higher SAM estimate for 1988.

The higher SAM rates for blacks underscore concerns about the higher burden of smoking-related diseases among blacks than among whites. For example, the average lung cancer death rate from 1980 through 1987 for blacks was 2.3 times higher than for whites (6). In addition, the larger racial disparity in smoking-attributable YPLL suggests that onset of smoking-attributable disease occurs at younger ages among blacks than among whites.

In this report, the SAM estimate for the United States represents a conservative estimate because it is based on 1988 prevalence data, whereas smoking-attributable diseases in 1988 actually are caused by higher rates of smoking in the 1950s, 1960s, and 1970s. For persons aged ≥ 55 years who smoked during those decades, lung cancer incidence and death rates and the chronic obstructive pulmonary disease death rate are increasing (6,7).

The SAM described in this report also represents a conservative estimate because the calculations did not include deaths from cardiovascular disease that may have been attributable to passive smoking and deaths from cancers at unspecified sites (1), leukemia (8), and ulcers (9)—all of which may also be associated with cigarette smoking. A recent analysis estimated that each year passive smoking is associated with 37,000 deaths from heart disease (10).

Despite declines in the prevalence of smoking in the United States, the absolute numbers of deaths caused by smoking-related diseases may increase for several years. This trend is due partly to the increase in absolute numbers of smokers among the post-World War II generation (i.e., persons aged 25–44 years), who will soon attain the ages at which smoking-related diseases occur (5). Persons in this age group and in older age groups will continue to develop chronic diseases associated with smoking unless widespread cessation efforts are successful. However, because

TABLE 2. Estimated smoking-attributable mortality (SAM) and smoking-attributable years of potential life lost (YPLL), by race, sex, and age* – United States, 1988

| Race | SAM | | | | Smoking-attributable YPLL before age 65 | | | | Smoking-attributable YPLL before age 85 | | | |
|----------|---------|---------|-----------|---------|--|---------|-----------|-----------|--|-----------|-----------|-----------|
| | Men | Women | Pediatric | Total† | Men | Women | Pediatric | Total† | Men | Women | Pediatric | Total† |
| White | 248,241 | 128,801 | 1,615 | 378,657 | 573,044 | 236,776 | 104,122 | 913,943 | 3,440,682 | 1,444,823 | 136,408 | 5,021,914 |
| Black | 32,781 | 14,011 | 900 | 47,692 | 144,481 | 65,899 | 58,057 | 268,437 | 606,297 | 257,438 | 76,059 | 939,794 |
| Other | 2,967 | 994 | 36 | 3,997 | 10,207 | 3,987 | 2,313 | 16,507 | 46,623 | 16,486 | 3,030 | 66,138 |
| Unknown§ | 1,330 | 2,495 | | 3,825 | | | | | | | | |
| Total† | 285,319 | 146,301 | 2,551 | 434,175 | 727,732 | 306,662 | 164,492 | 1,198,887 | 4,093,602 | 1,718,747 | 215,497 | 6,027,846 |

*Men and women, ≥35 years of age; pediatric, <1 year of age.
†Sums may not equal total because of rounding.
§Deaths among nonsmokers from lung cancer attributable to passive smoking; estimates were available by sex but not by race (4). The YPLL associated with these deaths are unknown and are not included in this table.

Smoking-Attributable Mortality – Continued

of the declining prevalence of smoking in the United States, death rates of lung cancer (11) and of coronary heart disease (12) among younger men and women have already begun to decline. Because smoking cessation is associated with a decreased risk for premature death at any age (9), efforts to support cessation must be further encouraged in the elderly and other groups (e.g., women and minorities) characterized by higher smoking prevalences or slower rates of decline in smoking.

References

1. CDC. Reducing the health consequences of smoking: 25 years of progress—a report of the Surgeon General, 1989. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, 1989; DHHS publication no. (CDC)89-8411.
2. Shultz JM, Novotny TE, Rice DP. SAMMEC II: computer software and documentation. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, CDC, April 1990.
3. Federal Emergency Management Agency. Fire in the United States: 1983–1987 and highlights for 1988. 7th ed. Emmitsburg, Maryland: US Fire Administration, Federal Emergency Management Agency, August 1990. (FA-94).
4. National Research Council. Environmental tobacco smoke: measuring exposures and assessing health effects. Washington, DC: National Academy Press, 1986.
5. Novotny TE, Fiore MC, Hatziaendreu EJ, Giovino GA, Mills SL, Pierce JP. Trends in smoking by age and sex, United States, 1974–1987: the implications for disease impact. *Prev Med* 1990;19:552–61.
6. CDC. Trends in lung cancer incidence and mortality—United States, 1980–1987. *MMWR* 1990;39:875,881–3.
7. CDC. Chronic disease reports: chronic obstructive pulmonary disease mortality—United States, 1986. *MMWR* 1989;38:549–52.
8. Garfinkel L, Boffetta P. Association between smoking and leukemia in two American Cancer Society prospective studies. *Cancer* 1990;65:2356–60.
9. CDC. The health benefits of smoking cessation: a report of the Surgeon General, 1990. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, 1990; DHHS publication no. (CDC)90-8416.
10. Glantz SA, Parmley WW. Passive smoking and heart disease: epidemiology, physiology, and biochemistry. *Circulation* 1991;83:1–12.
11. Devesa SS, Blot WJ, Fraumeni JF. Declining lung cancer rates among young men and women in the United States: a cohort analysis. *J Natl Cancer Inst* 1989;81:1568–71.
12. Ragland KE, Selvin S, Merrill DW. The onset of decline in ischemic heart disease mortality in the United States. *Am J Epidemiol* 1989;127:516–31.

TABLE 3. Age-adjusted smoking-attributable mortality (SAM) rates* and smoking-attributable years of potential life lost (YPLL) rates, by race† and sex — United States, 1988

| Race | SAM | | | Smoking-attributable YPLL (before age 65 yrs) rate | | | Smoking-attributable YPLL (before age 85 yrs) rate | | |
|--------------|--------------|--------------|--------------|---|--------------|----------------|---|----------------|----------------|
| | Men | Women | Both | Men | Women | Both | Men | Women | Both |
| White | 555.8 | 244.2 | 389.3 | 1,773.8 | 699.1 | 1,224.7 | 8152.0 | 3,063.8 | 5,472.8 |
| Black | 702.9 | 231.5 | 437.3 | 3,776.4 | 1,397.8 | 2,471.8 | 13,152.0 | 4,443.0 | 8,311.6 |
| Other | 186.8 | 54.0 | 115.0 | 843.1 | 290.8 | 549.3 | 3,177.0 | 968.4 | 1,981.5 |
| Total | 558.6 | 240.7 | 387.8 | 1,926.9 | 761.0 | 1,326.0 | 8,436.4 | 3,140.5 | 5,631.0 |

*Per 100,000 persons aged ≥ 35 years (adjusted to the 1980 U.S. population).

†Race-specific rates for SAM and all rates for smoking-attributable YPLL do not include passive smoking-related deaths.

Notices to Readers

Change of Dosing Regimen for Malaria Prophylaxis with Mefloquine

CDC recommends mefloquine (Lariam®) *alone* as the drug of choice for malaria prevention for travelers to areas with drug-resistant *Plasmodium falciparum* malaria (1-4).^{*} Based on accumulating experience with this drug, the prophylactic dosing regimen has been revised to a single dose of mefloquine to be taken every week (3). The first dose should be taken 1 week before travel. It should be continued *weekly* during the entire period of travel in malarious areas and for 4 weeks after departure from such areas.

The previous dosing regimen (in which one dose was taken each week for 4 weeks, followed by one dose every other week) compromises the effectiveness of mefloquine. Malaria prophylaxis with this dosing regimen among Peace Corps volunteers in West Africa was less effective than expected (5). The relatively low effectiveness was due to the every-other-week dosing regimen because all mefloquine prophylaxis failures occurred during the second week of the alternate-week dosing regimen in volunteers who had used mefloquine >2 months. Mean mefloquine blood concentrations were substantially lower during the second week of the every-2-weeks dosing regimen than during the first week, suggesting that during the second week blood levels are too low to suppress parasitemia (5).

All studies confirm that mefloquine is well tolerated when used for prophylaxis. No serious adverse reactions to mefloquine prophylaxis (i.e., psychoses and convulsions) have been observed among Peace Corps volunteers or among 18,462 persons enrolled in prophylactic drug trials and surveys of travelers who were taking mefloquine weekly (5). However, serious adverse reactions have been reported, especially when mefloquine was used for treatment of patients with malaria. Because mefloquine has been used in the United States for only 18 months, monitoring of adverse reactions remains important. Physicians are encouraged to report serious adverse reactions in persons using mefloquine to CDC's Malaria Branch, Division of Parasitic Diseases, Center for Infectious Diseases; telephone (404) 488-4046.

Consistent with previous guidelines, mefloquine is *not* recommended for use by travelers with known hypersensitivity to mefloquine; children <15 kg (30 lbs); pregnant women; travelers using beta blockers; travelers involved in tasks requiring fine coordination and spatial discrimination, such as airplane pilots; and travelers with histories of epilepsy or psychiatric disorder (1,2).

Travelers to areas of risk where chloroquine-resistant *P. falciparum* is endemic and for whom mefloquine is contraindicated may elect to use daily doxycycline *alone* or chloroquine *alone*. If chloroquine is used, the traveler needs to be aware of the need to seek medical attention for febrile episodes and to carry a treatment dose of pyrimethamine-sulfadoxine (Fansidar®) to be used if medical care is not available within 24 hours (1,2).

The CDC publication *Health Information for International Travel* (2) provides detailed information for each country on the risk for malaria to travelers and on the presence of drug-resistant *P. falciparum* (1). Health information for travelers is available 24 hours a day from the CDC automated telephone system at (404) 332-4555.

^{*}This revision replaces the recommended mefloquine dosing regimen in reference 1, page 4 and figure 2, and reference 2, page 98.

Mefloquine — Continued

Periodic shortages of mefloquine have occurred in the United States. Travelers who cannot obtain mefloquine before departure may be able to purchase it in Europe while in transit to countries with endemic malaria. Prescriptions written in the United States are accepted at airport pharmacies in Frankfurt and Paris (both Charles de Gaulle and Orly airports). The pharmacy at Heathrow Airport in London requires prescriptions written in Great Britain. At the airport pharmacy in Brussels, a prescription from the airport physician is required. Mefloquine is not available at the airports in Amsterdam and Rome and at Gatwick (London).

In some countries, a fixed combination of mefloquine and pyrimethamine-sulfadoxine is marketed under the name Fansimef®. Fansimef® should not be confused with mefloquine, and it is not recommended for prophylaxis of malaria.

Reported by: Malaria Br, Div of Parasitic Diseases, Center for Infectious Diseases, CDC.

References

1. CDC. Recommendations for the prevention of malaria among travelers. MMWR 1990;39 (no. RR-3).
2. CDC. Health information for international travel, 1990. Atlanta: US Department of Health and Human Services, Public Health Service, 1990; DHHS publication no. (CDC)90-8280.
3. CDC. Revised dosing regimen for malaria prophylaxis with mefloquine. MMWR 1990;39:630.
4. Lackritz EM, Lobel HO, Howell J, Bloland P, Campbell CC. Imported *Plasmodium falciparum* malaria in American travelers to Africa. JAMA 1991;265:383-5.
5. Lobel HO, Bernard KW, Williams SL, Hightower AW, Patchen L, Campbell CC. Effectiveness and tolerance of long-term malaria prophylaxis with mefloquine: need for a better dosing regimen. JAMA 1991;265:361-4.

Epidemiology in Action Course

CDC and Emory University will cosponsor a course designed for practicing state and local health department professionals. This course, "Epidemiology in Action," will be held at CDC May 20-31, 1991. It emphasizes the practical application of epidemiology to public health problems and will consist of lectures, workshops, classroom exercises (including actual epidemiologic problems), roundtable discussions, and an on-site community survey. There is a tuition charge.

Applications must be received by February 28. For further information and/or an application form, contact PSB, Emory University, School of Public Health, American Cancer Society Building, 4th floor, 1599 Clifton Road, NE, Atlanta, GA 30329; telephone (404) 727-3485 or 727-0199.

Erratum: Vol. 40, No. 3

In the text accompanying the "Quarterly AIDS Map" on page 55, the telephone number for the National AIDS Information Clearinghouse is incorrect. The correct telephone number is (800) 458-5231.

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